

CLAIMS

What is claimed is:

1. An alternating current switching circuit comprising:
 - 5 a first Field Effect Transistor (FET) having a first source, a first gate and a first drain;
 - a second FET having a second drain, a second source coupled to said first source and a second gate coupled to said first gate;
 - a first diode having a first anode coupled to said first source and a first cathode coupled to said first drain; and
 - 10 a second diode having a second anode coupled to said second source and a second cathode coupled to said second drain.
2. The device of claim 1 wherein said first FET and said second FET are N type MOSFETs.
3. The device of claim 1 wherein said first FET and said second FET are power
15 MOSFETs.
4. The device of claim 1 wherein said first diode and said second diode include turn-on voltages less than or equal to 1.2 volts.
5. An alternating current switching circuit comprising:
 - 20 a first Field Effect Transistor (FET) having a first source, a first gate and a first drain;
 - a second FET having a second drain, a second source coupled to said first source and a second gate coupled to said first gate;
 - a first diode having a first anode coupled to said first drain and a first cathode coupled to said first source; and
 - 25 a second diode having a second anode coupled to said second drain and a second cathode coupled to said second source.
6. The device of claim 5 wherein said first FET and said second FET are P type MOSFETs.
7. The device of claim 5 wherein said first FET and said second FET are power
30 MOSFETs.

8. A device comprising:
an alternating current switching circuit including:
a first Field Effect Transistor (FET) having a first source, a first gate
and a first drain,
5 a second FET having, a second drain, a second source coupled to said
first source and a second gate coupled to said first gate,
a first diode having a first anode coupled to said first source and a first
cathode coupled to said first drain; and
a second diode having a second anode coupled to said second source
10 and a second cathode coupled to said second drain; and
a switch control circuit coupled to said first gate and said second gate and
coupled to said first source and said second source, said switch control
circuit to facilitate operation of said alternating current switching circuit
at frequencies greater than 200 Hz.
- 15 9. The apparatus of claim 8 further comprising a load coupled to said alternating
current switching circuit, wherein said switch control circuit facilitates pulse
width modulation of current through said load.
10. The apparatus of claim 8 further comprising a resistor and capacitor circuit
coupled to said first drain and said second drain.
- 20 11. The apparatus of claim 10 wherein said resistor and capacitor circuit is
designed to dissipate substantially all stored energy in said alternating current
switching circuit.
12. The apparatus of claim 8 further comprising charge pump circuitry coupled to
an alternating current power source and said switch control circuit.
- 25 13. The apparatus of claim 8 further comprising filtering circuitry to facilitate
current flow through said load.
14. The apparatus of claim 8 wherein said switch control circuit is configured to
operate said alternating current switching circuit at frequencies greater than
20 kHz.

15. In an integrated circuit, an alternating current switching circuit comprising:
a first Field Effect Transistor (FET) having a first gate, a first drain, and a common source;
a second FET having a second gate, a second drain and said common source;
a first diode having a first anode coupled to said common source and a first cathode coupled to said first drain; and
a second diode having a second anode coupled to said common source and a second cathode coupled to said second drain.
16. The alternating current switching circuit of claim 15 wherein said first gate is coupled to said second gate.
17. The alternating current switching circuit of claim 15 further comprising a series resistor and capacitor circuit coupled to said first drain and said second drain.
18. The alternating current switching circuit of claim 17 wherein said series resistor and capacitor are designed to dissipate substantially all stored energy in said alternating current switching circuit.
19. The alternating current switching circuit of claim 15 wherein said first gate is coupled to said second gate and wherein said alternating current switching circuit further comprises a switch control circuit coupled to said coupled gates and said common source, said switch control circuit to facilitate operation of said alternating current switching circuit at frequencies greater than 200 Hz.
20. The alternating current switching circuit of claim 15 wherein said first FET and said second FET are power MOSFETs.
21. The alternating current switching circuit of claim 15 wherein said first FET and said second FET are N-type MOSFETs.
22. The alternating current switching circuit of claim 15 wherein the integrated circuit comprises a four pin device having a first pin coupled to said first and said second gate, a second pin coupled to said common source, a third pin coupled to said first drain and a fourth pin coupled to said second drain.

23. An alternating current switching circuit comprising:
a first Field Effect Transistor (FET) having a first source, a first gate and a first drain;
a second FET having a second drain, a second source coupled to said first source and a second gate coupled to said first gate;
a first diode having a first anode coupled to said first source and a first cathode coupled to said first drain; and
a second diode having a second anode coupled to said second source and a second cathode coupled to said second drain,
wherein said first and said second FETs receive an alternating current at said first and said second drain and wherein said coupled first and second source and said coupled first and second gate to facilitate switching said alternating current through said alternating current switch.
24. The device of claim 23 wherein said first diode and said second diode include turn-on voltages less than or equal to 1.2 volts.
25. A method of switching alternating current comprising:
receiving alternating current (AC) from a source;
switching said alternating current utilizing a MOSFET switch having two MOSFET devices with coupled sources and coupled gates and diodes antiparallel to each MOSFET device; and
controlling the switching of said alternating current, by said MOSFET switch, at frequencies greater than 200 Hz.
26. The method of claim 25 further comprising providing switched AC to a load.
27. In an integrated circuit, a method of switching alternating current comprising:
receiving alternating current (AC) from a source; and
applying said alternating current across drains of two MOSFET devices of a switch, where the two MOSFET device having a common source region, and their gates are coupled together, and the switch further having diodes that are antiparallel to each MOSFET device, flowing said alternating current through said common source region.

28.A device comprising:

means for switching alternating current; and

means for controlling switching coupled to said means for switching

alternating current, said means for controlling switching to facilitate

5 operation of said means for switching alternating current at frequencies
greater than 200 Hz.